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ABSTRACT

The purpose of this preliminary report was to provide information on the New Approach Method, on program effectiveness which can be used for decision-making. The first fifty children, half boys, half girls, were tested for attitudes toward Reading-Related Activities. Immaturity of children caused a delay in the completion of this program, since children take various amounts of time to finish, and it was decided that one year was not enough to make conclusions. Thus far, general opinion is that gains have been made and skills mastered through the NAM program. Parental reaction to NAM is discussed and nature of the evaluation explained. (RG)

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A DISCUSSION OF PRELIMINARY FINDINGS

FOR THE

EVALUATION OF THE NEW APPROACH METHOD (NAM)

The First Fifty Graduates

by

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Educational Testing Service
Princeton, New Jersey
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I. INTRODUCTION

Background

The first large-scale tryout of the New Approach Method (NAM), which has been described in other papers, has proceeded in Trenton, New Jersey for about one full year at the date of this writing.

Originally, the NAM program was to have been funded for one year. At the end of that period of time, it was anticipated that two fairly sizable groups of children would have completed the 84 tape recorded lessons which comprise the heart of the NAM program.

Delays

Unforeseen circumstances, however, have resulted in the completion of the program by fewer children than originally expected. The two separate six month phases originally planned have merged into one phase which has become longer than the combined duration of the two originally anticipated six month phases.

Reasons for the delay in graduating a sizable number of children from the NAM program are many. Problems of turnover and attrition have reduced the number of possible NAM graduates. Unanticipated transfer of NAM children to Head Start, kindergarten, or other programs in the fall accounted for much of this unanticipated reduction in sample size.

Another reason for the relatively small number of NAM graduates to date may be the NAM philosophy itself. Since NAM children are encouraged to proceed at a pace at which they feel comfortable, the program necessitates different children taking different amounts of time to finish the program. Moreover, since the majority of the children who have enrolled at the NAM mini-centers are, in general, younger than the smaller number of NAM

graduates in earlier programs, the program may have experienced additional delays because of the relative immaturity of the children in the present study.

For whatever the reasons, then, NAM personnel have, to date, been unable to graduate the number of children originally expected.

Role of Evaluation

One of the purposes of evaluation is to provide information on program effectiveness which can be used for decision-making. Some of the questions which may be based in part or in whole on evaluation findings are the following:

What elements of the program seem to be least effective and, therefore, most in need of change?

Should the program be adopted as a routine procedure in the setting in which the evaluation occurs? Should it be expanded to other settings?

Should the present level of program funding be continued?

These are only a few of the questions for which policy makers may wish to base decisions at least partly on evaluation findings. While no evaluation report can be so definite as to state that a program should or should not be refunded, expanded, or changed, it can present information which should allow more rational decisions to be made.

Funding Crisis

At the end of fiscal year 1971-72, the NAM program had exhausted its funds. A three month extension grant has recently been awarded in order that NAM staff might complete instruction for the majority of the children enrolled thus far.

Originally, evaluation plans called for only a final evaluation report by this office. This final report would contain all of the information gathered on program effectiveness when all (or at least almost all) of the NAM enrollees had completed the program.

However, because of the delays mentioned above and because another funding crisis will soon arise, it has been deemed necessary to provide preliminary data on the children who have, to date, finished the program. Needless to say, this report is being submitted to fulfill the need for at least some evaluation findings, even though data is still being gathered.

Nature of This Evaluation

Evaluation in the real world often poses a number of problems. Some of the most frequently occurring ones deal with the evaluator's inability to mainpulate variables, to control for certain factors or to randomly assign subjects to appropriate conditions. Many of these problems have occurred in the present evaluation.

Our original proposal called for the location of a sizable number of young children whose parents would be willing to enroll them in the NAM program. If a large enough group could be recruited by NAM personnel, as we had originally expected, some could be randomly "withheld" from first phase activities and assigned to the second six month phase. Testing these second phase children at the appropriate times would have allowed certain fairly powerful comparisons to be made.

The plan mentioned above proved to be infeasible for a number of reasons, some of them very practical ones. Since the salaries of NAM learning partners depended on the number of children whom they were able to recruit and begin instructing, it seemed unfair to require them to withhold children from the program, even in the interest of evaluation.

Our present hindsight also tells us that had the original plan been implemented, many of the children assigned to the second phase would

probably have been unavailable at the start of that phase because of the length of time needed to finish Phase I. In any event, a different evaluation strategy had to be devised.

The strategy we now employ involves the use of several evaluative comparisons, none of which can alone eliminate all sources of internal and external validity, but which together can eliminate most of these threats.

The most powerful technique we are currently using is the random assignment of a group of four-year-olds at Our Lady of the Divine Shephard Community Center (O.L.D.S.C.C.) to either a control condition or an experimental one (NAM). While we can tell what effects the NAM program has produced (in conjunction with the routine provided at O.L.D.S.C.C.) our ability to generalize to other populations may be somewhat restricted. For example, we would also like to know what effects NAM has on three- or five-year-old children or on children who do not also receive the type of program offered at O.L.D.S.C.C.

In order to shed further light on NAM effectiveness, additional evaluative comparisons will be made using data on children in other NAM conditions--mini-centers or at-home. These will involve simple comparisons of pretest and posttest scores, and more detailed comparisons involving pretest scores of some children with posttest scores of other children who have been matched on relevant characteristics. Age will certainly be one of these characteristics. In addition we have made some use of normative data available for the instruments we have used.

We have also attempted to locate and administer our battery of posttests to children who had started the NAM program and were pretested, but who have subsequently dropped out of the program. These children should provide some useful comparative information, since they were recruited in the same way as the NAM enrollees who have remained in the program. If further information shows these dropouts to be similar to NAM graduates on a number of important

characteristics, it may be possible to attribute differences in posttest scores between the groups at least partly to differences between the length of their participation in the NAM program. At this time this group of dropouts is small and hopefully the number of dropouts will remain small. Nevertheless, we are prepared to capitalize on NAM's losses.

With the combination of techniques discussed above we hope to provide some definite conclusions regarding the effectiveness of NAM program. This preliminary report will furnish data for some of those techniques.

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Nature of this Report

The present report will differ from the final report in a number of ways. First of all, the results reported here are based on a much smaller number of cases than the results which will appear in a final report. Secondly, many of the most important evaluative comparisons planned are at this time premature. Comparisons of the pretest scores of children in a certain age range at time of pretest with the posttest scores of another group of children in this same age range at posttest time, for example, depend on a sample large enough to ensure the required overlap in ages from pretest to posttest. At this point, the sample size precludes such comparisons.

One other extremely important comparison to be made involves the two groups of children at Our Lady of the Divine Shephard Community Center. As we mentioned above, one group of randomly assigned four-year-olds is currently receiving NAM lessons as a supplement to the regular activities of the center, while another group has been randomly assigned to a control condition. At this writing only four children have completed the series of NAM lessons at this center. Comparisons would, therefore, be of little value at this time.

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Thirdly, this report will contain little description of the program or of its activities, but will focus on the results, i.e., those data which shed the most light on program effectiveness. Likewise, tests of statistical significance, information on the reliability of our tests, and detailed analyses by sex, age level, etc. will be deferred until a complete set of data has been gathered and analyzed.

II. THE INSTRUMENTS

In our evaluation of NAM, we have tried to assemble a battery of instruments which we felt was a fair, although by no means a comprehensive, measure of all NAM objectives.

Several problems became immediately apparent when we began to consider various tests and measures for use in the evaluation. Some of the considerations which affected our decisions included the following:

There was little time for extensive development and tryout of instruments specifically designed to measure the objectives of the NAM program.

Testing time had to be relatively short, both because of the ages of the children and because of budgetary constraints.

Tests should be easily administered by local residents when given suitable training.

Above all, the instruments should be appropriate for young inner-city children.

Description of the Measures Used

Several instruments, each individually administered, have been used to assess the effectiveness of the NAM program. One test, which has been designated as the "NAM Test," contains items from the Sesame Street Tests and also items that were specifically constructed as measures of NAM objectives. This test was administered to children on a pretest-posttest basis.

This NAM test contains six sections which are composed of items dealing with:

1. Colors
2. Concepts
3. Shapes
4. Numbers
5. Letters
6. Word Reading

Subtests

The Color subtest requires a child to identify basic colors when presented with the appropriate stimuli. The Concepts section requires a child to demonstrate his understanding of certain relational concepts by pointing to the one picture in a set which correctly depicts that concept. ("There's a bear here, here, here, and here. Which bear is the smallest bear?")

The section on Shapes contains several items which require the child to name particular shapes when they are presented. ("What is this called?" or "What's the name of this?") Other items in this section require the child to recognize these shapes. ("Look at this, this, this, and this. Which one is a circle?")

The section on Numbers contains both recognition and naming type items, as well as items measuring knowledge of number-numeral correspondence and counting.

The Letters subtest also contains both recognition and naming type items, as does the section on Word Reading.

One other measure which has also been administered on a pretest-posttest basis is one consisting of twenty items, ten each from the "Letters and Sounds" and the "Aural Comprehension" sections of the Stanford Early School Achievement Test (SESAT). Items contained in the "Letters and Sounds" section instruct the child as follows: "Look at the box that starts with a picture of a candle. The other pictures are car, boat, lid. Point to the one that starts with the same sound as candle--car, boat, or lid."

Items contained in the "Aural Comprehension" subtest require the child to demonstrate his understanding of an orally presented story by pointing to an appropriate picture after the story is read to him.

Sampling items from sections of the SESAT was considered to be both desirable and feasible for several reasons. This sampling allowed us to decrease the amount of testing time which would have been needed to administer the whole test and to eliminate some of the relatively more difficult items. The elimination of these items was considered desirable, since the SESAT is normed on children who, on the average, are slightly older than the children in our sample. An advantage of the test is that individual item statistics are provided in the test's technical manual. Thus, comparisons using normative data can be made even though total scores are not obtained.

An attitude measure has also been devised and administered on a pretest-posttest basis. This measure, called "Attitudes Toward Reading-Related Activities," is being used to detect changes in children's attitudes towards reading and reading-related activities. The test first attempts to determine if the child understands the difference between "happy" and "sad" by requiring the child point to a picture which indicates how he feels when certain things happen to him. ("Here's Jimmy dropping his ice cream cone. Are you happy or sad when you drop your ice cream cone?")

The next section requires the child to point to the picture that indicates how he feels about various reading-related activities. ("Here's Jimmy looking at a story book. Are you happy or sad when you look at a story book?")

The final section of the attitude test requires children to express a preference for one of two paired activities, one of which is a reading-related activity. ("Here's a boy listening to a story. Here's a boy singing a song. Which would you like to do, or which do you like best?")

An additional measure has been given only upon completion of the program. That test contains items measuring knowledge of beginning sounds ("Look at the bear in the next arrow--bear. Point to the letter that bear begins with."), as well as items testing recognition of several words and word families frequently presented in the NAM lessons. Finally the child is asked to write his name for the examiner.

The descriptions provided above of the instruments used in our evaluation are, admittedly, brief but hopefully they give the reader some flavor for the kinds of measures we have used.

III. PRELIMINARY FINDINGS

The results presented in this report are of two types--information gathered by administering the tests mentioned above and information from responses to questionnaires administered to parents.

Problems in Interpreting Data

The major comparisons to be made using test data available at this point are those looking at differences between pretest and posttest scores. By making this type of comparison we can tell if, on the average, children are more skilled in certain areas now than they were at the time they were pretested. We cannot, however, be certain of how much of this change can be attributed to the educational treatment that occurred between testing periods, in this case the NAM program.

Other comparisons are needed to eliminate other plausible reasons for the changes. Two very plausible reasons for the changes in test scores of NAM graduates are those of history and maturation. It is possible that some other events or experiences affected NAM children during the time between pretesting and posttesting and that these events or experiences were responsible for the changes observed. For example, a child may have learned to recognize letters by watching the TV program Sesame Street or by attending Head Start classes, etc. It is also probable that improved performance on the measures used is at least partially due to the fact that the child is now older and better able to respond to the measures.

In order to eliminate some of the most plausible rival hypotheses for changes in children's scores, it is necessary to make comparisons in addition to the simple pretest-posttest type. It is also desirable to determine, if possible, what events have occurred in the period between pretesting and posttesting. Were children, in fact, watching Sesame Street,

attending Head Start, or participating in some other activity which might account for imporved test score performance? To provide some answers to these questions we have included in our parent questionnaire certain questions seeking information on the experience and habits of the NAM children.

Description of Children in the Sample

The children on whom the data in this preliminary report are based are the first 50 children to have finished the NAM program. Exactly half are boys, half are girls.

Only two of the children in this sample have worked with their own paents at home, while the remaining 48 have received the NAM lessons at one of four NAM mini-centers. Nearly half (23) of the mini-center graduates have come from one of the four centers.

The median age of the children when they were pretested was 56 months. Almost 95% of the children were between 45 and 70 months old at that time. The median age at time of posttest was about 64 months with 95% of the children being between 54 and 78 months old. The median time between pretest and posttest, which reflects the length of time taken to finish the program, was 8 months. One child was able to finish the series of lessons in less than 4 months while three others took almost 11 months.

When more data becomes available we will make comparisons to determine whether younger children take longer to finish the lessons than do older ones.

Discussion of Test Results

Test results for the 48 children having both pretest and posttest scores are presented by subtest in Table 1. The overall picture shows that this group of children gained in each of the areas tested. Some of the gains are dramatic; others are less pronounced. Since no tests of statistical significance will be provided in this report, small gains should be viewed cautiously. The reader is cautioned that although we may speak of small gains throughout this report, some of them may actually be non-significant.

Inspection of Tables 1 and 2 reveals that children scored relatively high on several of the pretests. Very large gains from pretest to posttest, then, were not possible on these subtests. On some other tests posttest scores were quite high, reaching the maximum possible score in several instances. This ceiling effect also may have depressed gain scores.

There were other subtests, however, on which the opposite was true. The fact that initial scores were quite low in some instances would allow instructional effects to be readily detected. Discussion of results by subtest follows.

Table 1

Pretest, Posttest, and Gain Scores for All Children

Having Both Pretest and Posttest Scores (N = 48)

Subtest	Maximum Possible Score	Pretest Mean	Pretest SD	Posttest Mean	Posttest SD	Gain Mean	Gain SD
Colors	4	2.6	1.5	4.0	0.0	1.4	1.5
Concepts	10	8.0	1.3	9.1	0.8	1.1	1.5
Shapes	7	4.1	2.1	6.4	1.1	2.3	2.0
Numbers	10	5.2	2.7	9.4	0.8	4.2	2.5
Letters	16	5.7	4.2	15.2	1.6	9.4	4.1
Word Reading	18	2.7	2.2	8.4	4.9	5.6	4.6
Counting	30	13.9	9.7	25.7	6.6	11.9	9.6
Letters and Sounds*	10	4.5	2.0	6.5	2.8	2.0	3.1
Aural Comprehension*	10	6.0	2.0	7.4	1.7	1.4	1.8
Beginning Sounds**	7	***		5.3	3.4	***	
Sight Words**	3	***		1.7	1.2	***	
Word Families**	5	***		1.7	3.4	***	

*N = 46 for these subtests

**N = 50 for these subtests

***Posttest only

Table 2

Percentage of NAM Children Answering Each Item Correctly at Pretest and Posttest[1]

	Pretest % Correct N=48	Posttest % Correct N=50
COLORS		
Naming:		
1. Red	68	100
2. Blue	50	100
3. Green	68	100
4. Yellow	64	100
CONCEPTS		
5. Which ball is same?	94	100
6. Which pencil is longest?	92	100
7. Which is straight line?	92	98
8. Which is biggest bear?	90	100
9. Which is smallest bear?	86	94
10. Which bird is above cage?	32	46
11. Which dog is in box?	92	100
12. Which trees are all in row?	48	74
13. Which balloon is at bottom?	74	100
14. Which balloon is at top?	72	100
SHAPES		
What is this called:		
15. Square	46	90
16. Circle	74	98
17. Rectangle	16	76
18. Triangle	46	90
Which one is a:		
19. Circle	82	98
20. Square	72	94
21. Triangle	62	94

[1]The reader is urged to remember that these estimates are based on a relatively small sample and are, therefore, subject to more fluctuation than estimates based on a larger sample would be.

	Pretest % Correct N=48	Posttest % Correct N=50
NUMBERS		
Which is:		
22. 3	70	100
23. 8	62	100
What is this:		
24. 6	30	98
25. 9	28	90
26. 2	46	100
27. 10	20	88
Number/Numeral Correspondence:		
28. 2 frogs	70	100
29. 5 turtles	58	100
Numerical relations:		
30. First	78	100
31. Last	36	64
Counting:		
32. To 10 without mistakes	52	100
33. To 20 without mistakes	24	78
34. To 30 without mistakes	18	54
LETTERS		
Which letter is:		
35. A	54	100
36. P	40	98
37. B	56	100
38. E	62	100
39. f	48	100
40. b	36	78
41. n	34	96
42. h	42	96

	Pretest % Correct N=48	Posttest % Correct N=50
LETTERS (continued)		
What is this letter:		
43. S	32	100
44. C	26	94
45. H	28	92
46. W	28	86
47. m	20	96
48. e	20	94
49. t	14	100
50. g	10	88
READING WORDS		
Which one says:		
51. BIRD	38	78
52. SUN	26	82
53. mop	16	64
54. BOAT	14	64
55. AT	22	80
56. sister	32	90
57. hand	42	64
What does this say:		
58. TO	10	42
59. HAT	10	38
60. STREET	6	12
61. met	6	32
62. mouse	4	38
63. big	6	26
What does this sentence say:		
64. THE	6	26
65. LITTLE	6	16
66. BOY	10	34
67. IS	2	40
68. HAPPY	4	14

	Pretest % Correct N=48	Posttest % Correct N=50
LETTERS AND SOUNDS (Stanford Early School Achievement Test)		
Sound of:		
69. g	40	72
70. m	38	76
71. c	42	72
72. t	62	68
73. r	30	60
74. p	40	70
75. h	26	64
76. s	40	64
77. d	48	56
78. sn	46	58
AURAL COMPREHENSION (Stanford Early School Achievement Test)		
79. Story 1	56	80
80. Story 2	62	90
81. Story 3	70	86
82. Story 4	70	78
83. Story 5	48	64
84. Story 6	62	62
85. Story 7	30	68
86. Story 8	52	72
87. Story 9	60	84
88. Story 10	46	46

		Pretest % Correct N=48	Posttest % Correct N=50
BEGINNING SOUNDS			
	Which letter(s) does this word being with:		
89.	Bear	***	84
90.	Sandwich	***	86
91.	Apple	***	78
92.	Pan	***	80
93.	Foot	***	74
94.	Wig	***	78
95.	Thumb	***	46
SIGHT WORDS			
96.	BUS	***	72
97.	CAR	***	58
98.	BIKE	***	40
WORD FAMILIES			
99.	(P)AM	***	50
100.	(P)AT	***	40
101.	(P)ET	***	28
102.	(P)AY	***	18
103.	(P)AN	***	38

*** Posttest only

Colors: The colors subtest was the first test that the child received. It was thought that children would generally be more familiar with basic colors than with some of the other areas that were to be tested later in the testing sequence. This section, then, was used not only to determine if the exercises used in the NAM program had any effect on the child's knowledge of colors, but also to help the child become accustomed to the testing situation, which may very well have been his first such experience.

Pretest scores indicated that children tended to be relatively familiar with the basic colors when they started the program. But the posttest scores of the first 50 NAM graduates should be quite pleasing to NAM personnel, for every child was able to name every color on the posttest.

Concepts: Knowledge of ten relational concepts stressed in the first few NAM lessons and reviewed in later lessons was tested in the concepts subtest. Again, the data we had indicated that these items should also be relatively easy for children in this age group. This proved to be the case since, on the average, children were able to answer 8 of the 10 pretest items correctly, indicating that they were, in fact, capable of responding appropriately. Although pretest scores were high, a slight gain occurred from pretest to posttest, pushing scores near the maximum possible score.

Table 2 reveals differences in the relative difficulties of the items. The concept of "above" was the most difficult concept when children were first tested. It also tended to be quite difficult on the posttest, as was the concept of "all in a row." On the whole, by posttest time, children seemed to have mastered all the other concepts tested.

Shapes: The NAM children also improved with regard to their ability to name and recognize simple shapes (circle, triangle, square and rectangle). Posttest scores again were almost as high as possible. Table 2 shows that children tended to be better able to recognize or name a circle at both pre- and posttest than any of the other shapes. However, at posttest time children had become familiar with all the shapes we presented, the rectangle still being the most difficult.

Numbers: The numbers subtest contained items testing both recognition and naming one and two digit numbers. In addition, there were two items dealing with number/numeral correspondence and two others testing knowledge of the concepts "first" and "last," although these latter two items might also have been included in the concepts subtest.

Again gains were quite high for this section. The pretest mean of 5.2 increased to 9.4 (of 10) on the posttest. Table 2 indicates that only the concept of "last" remained very difficult for these children.

Letters: Probably the most dramatic gains from pre- to posttest occurred on the letters subtest, which contains eight items requiring recognition and eight items requiring naming of letters. A mean gain of over 9 points resulted in near perfect posttest scores for most of the children in our sample.

Although it is desirable to look at both recognition and naming scores for this subtest, that data, unfortunately, was not available at this writing but will be provided in a final report.

Table 2 reveals that, in general, these 50 children found the tasks of naming or recognizing both upper and lower case letters to be quite easy on the posttest. Percentages presented in Table 2 show that naming letters was more difficult on pretest than was recognizing letters, even after adjustment for guessing. On the posttest, however, the children in our sample were able to perform both tasks about equally well. The only item on the posttest which was at all difficult

was that one requiring recognition of lower case "b." The fact that this item contains a lower case "d" as one of the distractors may account for the relative difficulty of the item.

Word Reading: The word reading subtest, like several previous subtests, contains both recognition and naming type items. Recognition required the child to pick out the appropriate word from a set of four when he was told that word (and in some cases also given a picture of that word). Naming required the child to actually read certain words.

When children began the NAM program very few were able to read or recognize many of the words presented. In fact, the pretest average of 2.7 was not much higher than the average score (1.8) that the group would have received by chance alone. In contrast, at posttest NAM graduates were able to answer nearly half (8.4) of the 18 items correctly.

As with the letters subtest, we were unable to get score breakdowns by recognition and naming in time for this report but these scores will most certainly be provided in the final report. Table 2, however, suggest that gains were again more pronounced for recognition items than for those items requiring the child to make a verbal response.

Counting: The children in our sample seemed to be able to count fairly well at the time of pretesting. On the average, the children could count to about 14 at that time, while on the posttest they were able to count nearly 12 digits further.

Table 2 shows that all of the children posttested to date were able to correctly count to 10 on the posttest and over half of them were able to count to 30 without making any mistakes.

Letters and Sounds (Stanford Early School Achievement Test): The children in our sample showed moderate gains on the 10 items selected from the Letters and Sounds subtest of the Stanford Early School Achievement Test. The selected items require the child to point to the picture of the object that starts with the same sound as another object (e.g., gate starts with the same sound as rose, gift or witch) after the child is told the name of each object.

Table 2 reveals that all items were less difficult for these children when they had finished the NAM program than when they had just started. As was previously stated, one advantage of the Stanford Early School Achievement Test, at least for our purposes, is that individual item statistics are provided for a large national sample. These norms are given for groups at the beginning of kindergarten and beginning of first grade.

Table 3 presents the median percentages for the two subtests composed of items selected from the Stanford Early School Achievement Test (SESAT) for both the NAM sample and for the group on which national norms were established.

Table 3

Medians of Percentages Answering Each Item Correctly for the Letters and Sounds Subtest of the SESAT

	Pre	Post
NAM Sample	.40+	.66++
SESAT Norming Sample	.39*	.64**

+N = 46 ++N = 50

*Beginning kindergarten

**Beginning first grade

Table 3 indicates that the set of items composing the Letters and Sounds subtest was about equal in difficulty for NAM children at pretest and a national sample of children beginning kindergarten. The posttest median for NAM children is again virtually the same as that for a national sample of children beginning first grade.

One important point which must be made here is that all of our testing was done on an individual basis. The national norms for the SESAT were based on the results of group administrations. The differences in item statistics that the two procedures may produce is uncertain. One would suspect that somewhat higher scores might result from individually administered tests, although the exact effect is uncertain.

Nevertheless, if we can attach some credibility to our findings, we would have to say that the NAM sample, although somewhat younger than the national sample, started out with about the same degree of skill (as measured by these items) as the national sample. Moreover, the NAM group seemed to maintain pace with the older group and they did so in a somewhat shorter period of time, since less than a year has elapsed from the time the first NAM enrollee was pretested to the time the last child in the present sample was posttested.

Aural Comprehension (SESAT): Table 1 reveals that a modest gain was achieved from pre- to posttest on this section of our test battery. This measure of comprehension was included in the battery to determine if improved aural comprehension might be a side-effect of the NAM instructional program. Since the program requires the child to listen to and react to tape recorded instructions, we postulated that improvement in that area might occur.

Table 4 suggests that the NAM children were somewhat less able to answer these questions at pretest than were the children comprising the SESAT norming sample. The gap at posttest remained about the same, indicating that NAM graduates seem to have again kept pace with the children in the national sample.

Table 4

Medians of Percentages Answering Each Item Correctly for the Aural Comprehension Subtest of the SESAT

	Pre	Post
NAM Sample	.58+	.75++
SESAT Norming Sample	.66*	.84**

+N = 46 ++N = 50

*Beginning kindergarten

**Beginning first grade

Beginning Sounds: In contrast to the letters and sounds section of the SESAT, this test required the child to choose the letter that a word begins with ("Look at the picture of the bear. Point to the letter that bear begins with."). The letters and sounds section required the child to determine which beginning sounds were the same, without having to attach the appropriate letter to that sound.

This test was administered on a posttest basis only. The children seemed to do quite well on these items, averaging 5.3 of a possible 7. Since children were not very familiar with the alphabet when they began the program, as revealed by the relatively low pretest scores on the letters subtest, we can probably safely assume that children generally would not have been able to match a letter with its sound had the present test been given at pretest. Most likely, scores would have hovered around a chance score of 1.8.

Table 2 suggests that only the task of attaching the "th" sound to the word "thumb" was very difficult for this sample. It is interesting to note that the two easiest items for this group were those dealing with the sounds of "b" and "s". These sounds were the first to be introduced and the ones most frequently repeated in the NAM lessons. The "th" sound, on the other hand, was introduced near the end of the series of NAM lessons and was, therefore, presented less frequently, as was the sound of "w." Overall it seems significant that children performed so well on this subtest, since the NAM lessons place heavy emphasis on a phonics approach.

Sight Words: On a posttest basis only, children were asked which of three words they could identify. These words were ones presented with varying degrees of frequency in the NAM lessons.

Almost three quarters of the children could read the word "Bus," while about 40 percent knew the word "Bike." These findings are, in general, consistent with those of the previously discussed word reading segments, i.e., recognition of words is easier than reading them.

Word Families: The purpose of this section, which was given at posttest only, was to determine if children were becoming familiar with the word families that were presented in the NAM lessons.

First our testers tried to make sure that the child being tested knew the sound of "p". (Results of the beginning sounds subtest indicate that 80 percent could already match the letter "p" with the "p" sound in pan.) Several words each beginning with "p" were then presented individually.

The results shown in Tables 1 and 2 suggest that this series of tasks was quite difficult for our sample. Again, however, the relative difficulty of the items seems to be related to the frequency of presentation in the NAM lessons. Lessons dealing with the -am or -at families, for instance, occur much more frequently than those presenting members of the -et or -ay families. Our findings suggest that children are more familiar with the former families than with the latter ones at time of posttesting. We hope that a more formal content analysis of the NAM lessons will shed additional light on the relationship between frequency of presentation and achievement.

Sesame Street Test Norms

Embedded in our NAM test battery were several items which were used in ETS's evaluation of the first year of the television show Sesame Street. Only those items testing skills specifically taught in the NAM lessons were included in our battery.

Since the Sesame Street tests had been shown to be appropriate for three-, four-, and five-year-old children from a variety of populations (four-year-old disadvantaged children from inner-city areas were the most heavily represented group)[1] and since we had available a considerable amount of data on these items, we decided to use as many of the Sesame Street items as possible.

The actual number of these items that were judged to measure skills taught in the NAM lessons, however, turned out to be relatively small. Nonetheless, we felt that the data on these items, might provide useful baseline information for our evaluation of the NAM program.

There are several important points to remember when one compares the Sesame Street data with the data obtained on the present sample of NAM children. Although the children in both samples were approximately the same age at pretest, the time between pre- and posttesting was six months for the Sesame Street sample. Since the NAM lessons allow children to proceed at individual rates, the amount of time between pre- and posttesting varied for each child, since we tested each child when he began and again when he completed the program.

For the children in our sample of 50 NAM graduates, the median time between pretesting and posttesting was 8 months, although it ranged from 3-1/2 to 11 months. Not only were there differences in intervals between pre- and posttesting for the two samples, but this interval may have been

[1]The median age of the Sesame Street sample was 53 months at pretest. About 78% of the total sample were termed disadvantaged as determined by traditional SES measures.

shorter for the more able NAM students than for the less able ones in our sample. Needless to say, these conditions restrict the degree of comparability between the two sets of data. Nevertheless, data for the Sesame Street sample will be presented here to give the reader some idea of the difficulty of the items for a large sample of children from five geographically dispersed sites.

It is important to mention here that the presentation of data from the Sesame Street evaluation is in no way intended to allow comparisons between the effectiveness of Sesame Street and the NAM program. The data is intended only to help the reader establish some general perspective for the status of NAM children in the absence of more appropriate comparisons.

Table 5 provides item statistics for those items common to both the Sesame Street and the NAM evaluations. The posttest statistics from the Sesame Street evaluation presented here reflect what may be considered an "average"[2] amount of Sesame Street viewing. Pretest item statistics for the Sesame Street sample naturally do not reflect the effects of Sesame Street viewing since pretesting was concluded before the start of the first year's telecast.

It is probably safe to assume, however, that both the pre- and posttest NAM results may reflect the effects of Sesame Street viewing. Moreover, it will be a difficult if not an impossible task to unravel these effects. To complicate matters further, this past year saw the introduction of a new television show, The Electric Company, which, although its primary target is children in second grade, may also have had some effect on children in our sample.

[2] In the first year's evaluation of Sesame Street children were retroactively grouped according to the frequency with which they had watched Sesame Street during the preceding year. Quartiles were established in which children had viewed the show rarely or never, about 2 or 3 times a week, about 4 or 5 times a week, and more than 5 times a week. The statistics we have presented here are the averages computed using the groups watching 2 or 3 times a week and 4 or 5 times a week. Our decision, therefore, which is admittedly somewhat arbitrary, may be thought of as representing a group which viewed on the average 3 or 4 times a week.

Table 5

Percentages of NAM Subjects and Sesame Street Subjects Answering Each Item Correctly on Pretest and Posttest for Items Common to Both Evaluations

	Pretest % Correct		Posttest % Correct	
	NAM N=48	Sesame Street N=943	NAM N=50	Sesame Street N=943
CONCEPTS				
1. Biggest	90	96	100	99
2. Smallest	86	81	94	93
3. First	78	*	100	90
4. Last	36	*	64	41
SHAPES				
What is this called:				
5. Square	46	29	90	61
6. Circle	74	63	98	83
7. Rectangle	16	13	76	39
8. Triangle	46	33	90	67
Which one is a:				
9. Circle	82	84	98	94
10. Triangle	62	33	94	67
NUMBERS				
What is this:				
11. 2	46	19	100	53
12. 6	30	12	98	38
13. 9	28	7	90	36
14. 10	20	12	88	40
LETTERS				
Which letter is:				
15. A	54	38	100	68
16. P	40	29	98	61
17. f	48	26	100	51
What is this letter:				
18. S	32	12	100	39
19. C	26	13	94	38
20. H	28	10	92	37
21. W	28	7	86	46
22. m	20	6	96	28
23. e	20	7	94	30
24. t	14	9	100	35
25. g	10	2	88	11
READING WORDS				
26. HAT	10	1	38	2
27. STREET	6	0	12	2

At the present time our data on the Sesame Street viewing habits of the children in the NAM sample under consideration here is meager. Responses from the 25 parent questionnaires that have been returned to date seem to support our decision to use item statistics for a group viewing Sesame Street an "average" amount of time, since parents reported that these children either now watch Sesame Street or had watched it in the past. Table 6 presents parent responses to questions about their children's Sesame Street viewing habits.

Table 6

Parent Questionnaire Responses to Questions on Sesame Street Viewing Habits

Does your child ever watch the TV show Sesame Street?

No.	4
Yes, every day or almost every day.	10
Yes, about 3 or 4 times a week.	4
Yes, about 1 or 2 times a week.	7
Yes, less than once a week.	0
Don't know.	0

Did you child ever watch Sesame Street in the past?

Yes.	22
No	2
Don't know	1

Inspection of Table 5 reveals that, in general, the children in our sample were more able to answer the questions used in the Sesame Street evaluation at pretest time than were the children in the Sesame Street sample. The exact reason for the relative superiority of NAM children at pretest is uncertain. It is possible that it may not be appropriate to consider these

children disadvantaged, at least in the educational sense. It is also possible that the first 50 children to finish the NAM program are more able than the children who are taking longer to complete the program. Another possibility, as was stated above, is that the effects of previous Sesame Street viewing may be at least partly responsible for the relatively high pretest scores of our sample.

Gains in percentages answering each item correctly are, in general, also higher for NAM graduates than for the Sesame Street sample. At this time we can only speculate as to what agents are responsible for the differences in gains observed for each group. Undoubtedly, a combination of factors is responsible which we will attempt to unravel as more data becomes available. In any event, our posttest results for the children in our NAM sample compare favorably with those of the Sesame Street sample.

Attitudes Toward Reading-Related Activities

This test was designed to assess both children's attitudes toward reading and related activities and also changes that might occur from pre- to posttest. Unfortunately, because of the extremely short time available for instrument development when our evaluation began, this measure was not available when the first children were pretested. Consequently, we have both pre- and posttest data on only 15 children at this time. We will, therefore, defer discussion of observed changes in attitudes until the final report is prepared.

It may be useful, however, to discuss data for selected posttest items. Table 7 suggests that the sample of children taking the attitude measure was able, in general, to respond appropriately to the items on the posttest. Indeed, all of the children were able to recognize a happy face and almost all knew which face was sad or unhappy.

Section 2, Attitude Towards Reading-Related Activities, of this instrument requires the child to point to the picture that shows how he feels when he is engaged in certain activities. In general, these children tended to be relatively happy regardless of what activity we asked them about. Getting a present, whether it was a book or an article of clothing, seemed to make children slightly more happy than any of the other activities presented. Whether these relationships will hold up using the more stable estimates of a larger sample and whether there is any change in attitudes towards particular activities from pre- to posttest remains to be seen.

Section 3 of our attitude measure requires the child to indicate his preference for one of two paired activities, one of which is a reading-related activity. This section was included in this measure, since data available to us regarding the use of items such as those found in the previous section

Table 7

Percentage of Children Answering Each Item Correctly

and Percentage Choosing Each Activity on Posttest (N = 50)

TEST: ATTITUDES TOWARD READING-RELATED ACTIVITIES

		% Correct	% Incorrect
	Happy and Sad:		
1.	Which is happy?	100	0
2.	Happy or sad?	96	4
3.	Opening a present?	90	10
4.	Falling off bike	80	20
5.	Dropping lollipop	86	14
6.	Eating ice cream	94	6
	Attitude towards reading-related activity:	Happy	Sad
7.	Looking at a picture book	84	16
8.	Learning ABC's	86	14
9.	Watching television	90	10
10.	Listening to tape recorder	82	18
11.	Drawing and coloring picture	88	12
12.	Looking at story book	84	16
13.	Singing a song	90	10
14.	Getting book as a present	94	6
15.	Getting shirt or dress as present	98	2
16.	Listening to story	92	8
	Like to do best:	% choosing each option	
17.	Eat ice cream	78	
	Drink water	22	
18.	Look at picture book	64	
	Look at story book	36	
19.	Watch television	48	
	Listen to tape recorder	52	
20.	Listen to tape recorder	36	
	Draw and color picture	64	
21.	Get a new book	16	
	Get a new shirt (dress)	84	
22.	Listen to story	46	
	Watch television	54	
23.	Look at story book	56	
	Watch television	44	
24.	Sing a song	78	
	Listen to story	22	

indicated that children in this age range tended to indicate they were happy regardless of the activity, even falling off a cicycle. Section 3 was designed to get another "fix" on children's attitudes.

Table 7 suggests that children knew what was required of them on this section. A test item on which the child expressed a preference for either an ice cream cone or a glass of water revealed that children had clear cut preferences for ice cream, as we had hypothesized.

Since baseline data from pretest and from control sources is scarce at this time, we will defer discussion of these results until the final report is prepared.

However, there are two items which may have some meaning in the absence of comparison data. Those are the items which pair the activity of "listening to the tape recorder" with either "watching television" or "coloring a picture." Results suggest that children enjoy working with the tape recorder, at least as much as watching television, but not as much as drawing and coloring. If more stable estimates corroborate these findings, then the use of tape recorders would indeed seem to be, as NAM originators have contended, an effective way of "turning kids on." The fact that children still indicate a fairly high preference for the tape recorder after having worked with it almost daily for a relatively long period of time seems significant. We must note here that it will also be important to look at these statistics for pretest results when more data becomes available.

Parental Reaction to NAM

The NAM program has tried from its beginning to involve parents in the learning process, either by encouraging parents to administer the NAM lessons to their own children or to assist their children with the supplementary materials that are sent home from the NAM mini-centers that their children attend.

Since parental involvement has been an integral part of the NAM program, parental reactions to the program have been solicited through a questionnaire that has been distributed to parents as their children "graduate" from the program.

The questions contained in this questionnaire fall into several general categories. Some attempt to obtain background information on both the children and their parents. Others seek information about the extent of parent and child involvement in the program, while still others solicit parent perceptions of the effectiveness of the NAM program. It is these latter questions which will be discussed in this report.

To date, 25 parent post questionnaires have been returned. The response rate is being maintained at about the 50% level thus far. Hopefully, follow-ups of non-respondents may boost this rate even higher. Nevertheless, this rate represents a moderately high level of return, suggesting that parents are concerned about their children's involvement in the NAM program. Responses for the six questions that deal with parental reactions to NAM are presented in Tables 8, 9, and 10.

Generally, questionnaire results indicate that the parents responding are quite pleased with what the NAM program has done for their children.

Table 8

Responses for Selected Items from Parent Questionnaires

18. What do you think were the main benefits that you and your child received from the NAM Program? (Circle one number for each of the following)

	Yes, definitely	Somewhat	No	No Response
My child began to read.	16	2	0	7
My child learned to enjoy reading and related activities	17	2	1	5
The NAM Program brought me closer to my child	4	7	4	10
The NAM Program helped me to know and understand my child better.	8	6	1	10
Other (Specify)_____				

19. How successful do you think the NAM Program has been in helping your child learn to read? (Circle one number)

Very successful.	18
Somewhat successful.	5
Not very successful.	0
Don't know	1
No Response.	1

20. In your opinion, how helpful has the NAM Program been for your child in areas other than learning to read? (Circle one number)

Not very helpful	1
Somewhat helpful	4
Very helpful	18
Don't know	0
No Response.	2

21. In what areas has it been helpful?

_____

_____

22. If you have other young children, would you also want them to attend the NAM Program? (Circle one number)

Yes.	20
No	0
Don't know	1
No Response.	4

29. If you have any other comments about your child's or your participation in the NAM Program, please make them here.

_____

_____

When asked about the benefits that their children received from the NAM program (Question 18), parents indicated that, of those listed on the questionnaire, learning to read and learning to enjoy reading and related activities were the major benefits. Sixteen of 18 parents marking one of the options said that their children definitely began to read; 17 of 20 indicated that their children definitely learned to enjoy reading and related activities. Table 8 shows the number of parents choosing each option.

The next most frequently perceived benefit, although mentioned only about half as often as the benefits discussed above, was a better knowledge and understanding of one's own child. Eight responses indicated this to be a definite benefit, while 6 others indicated that it was somewhat of a benefit.

Only four parents thought that the program definitely brought them closer to their children, while 7 others thought that the program helped somewhat in this regard. When more data becomes available on the children working directly with their own parents at home, it will be interesting to compare the responses of parents who have worked with their own children with the responses of those parents whose children have attended mini-centers. It is possible that those parents working more directly with their own children would be more likely to notice changes in relationships with their children.

The 25 parents responding to our post questionnaire have given the NAM program high success ratings. With regard to the area of teaching reading, 18 parents considered the program to be "very successful," while 5 others thought it was at least "somewhat successful." Likewise, 18 parents also considered the program "very helpful" in other areas. Only one parent thought the program was "not very helpful" in areas other than learning to read. The areas in which parents considered NAM to be helpful are presented in Table 9. Again reading was mentioned most often (8 times) as an area of benefit. Other areas which are related to the content of the NAM lessons, which were also mentioned quite frequently, were letters and sounds (5 times) and counting or number activities (5 times).

With respect to non-cognitive areas, parents mentioned sharing, helping, or cooperating most often (7 times). Six parents thought that either their children's behavior had improved or that their children were more self-disciplined as a result of their participation in NAM. Improvement in communication, understanding, or self-expression was mentioned 5 times. Several less frequently mentioned areas are also presented in Table 9.

Table 9

Responses to Question 21 from Parent Post Questionnaire

Area	Frequency of Mention
Reading	8
Spelling	3
Learning Shapes and Sizes	2
Learning Colors	2
Letters or Sounds	5
Coloring and Drawing	2
Counting or Number Activities	5
Behavior or Self-discipline	6
Overcoming Shyness	3
Sharing, Helping, or Cooperating	7
Communication, Understanding, or Self-Expression	5
Better Relationships with Others	5
Independence	4
Enjoyment of Learning or Interest in Books	2

In order to assess overall parent satisfaction with the NAM program we also posed the following hypothetical question to parents: "If you have other young children, would you also want them to attend the NAM program?" This seemed to us to be tantamount to saying, if you had it to do over again, would you do it again? Of the 21 parents marking a response

to this item, 20 answered "yes" while the other said "don't know." Indeed parents seemed to be quite satisfied with the program.

The last question on our parent questionnaire gave parents a chance to make any other comments they might wish to make about their child's participation in the NAM program. Since the number of questionnaires returned to date is small, we have reproduced all of the parent responses to this question, many of them verbatim. These responses need little interpretation and are presented in Table 10.

Finally, we asked children (on the posttest) to endorse our evaluation efforts by signing their names for us. All 50 children were able to do so. A random sample of these has been reproduced as Table 11.

Table 10

Comments about Participation in NAM Program
(Question 29)

Four parents expressed desire for some type of follow through activities.

One parent expressed concern about children being bored with traditional school activities as a result of participation in NAM. Would like to see the program open up to every child.

"The program is beautiful and my child really loved it."

"NAM has been very helpful to my child and I would recommend it for any child."

Child enjoyed NAM.

"Glad that I learned about the NAM program because it helped my child and me. Keep up the good work."

"NAM is one of the most sincere programs we have been involved with. Parents invited to participate and are supported in their efforts. No matter how little education they have there is a way one can help."

"NAM has done wonders for my son."

Loving relationship between child and "wonderful" learning partner was responsible for child's success in program.

"I think it is a very good program and has really prepared my child for school in every way possible."

The kids and teachers helped child overcome shyness. "Wonderful program for preschoolers."

"She enjoyed the program and still wants to do her lessons."

"NAM program is wonderful."

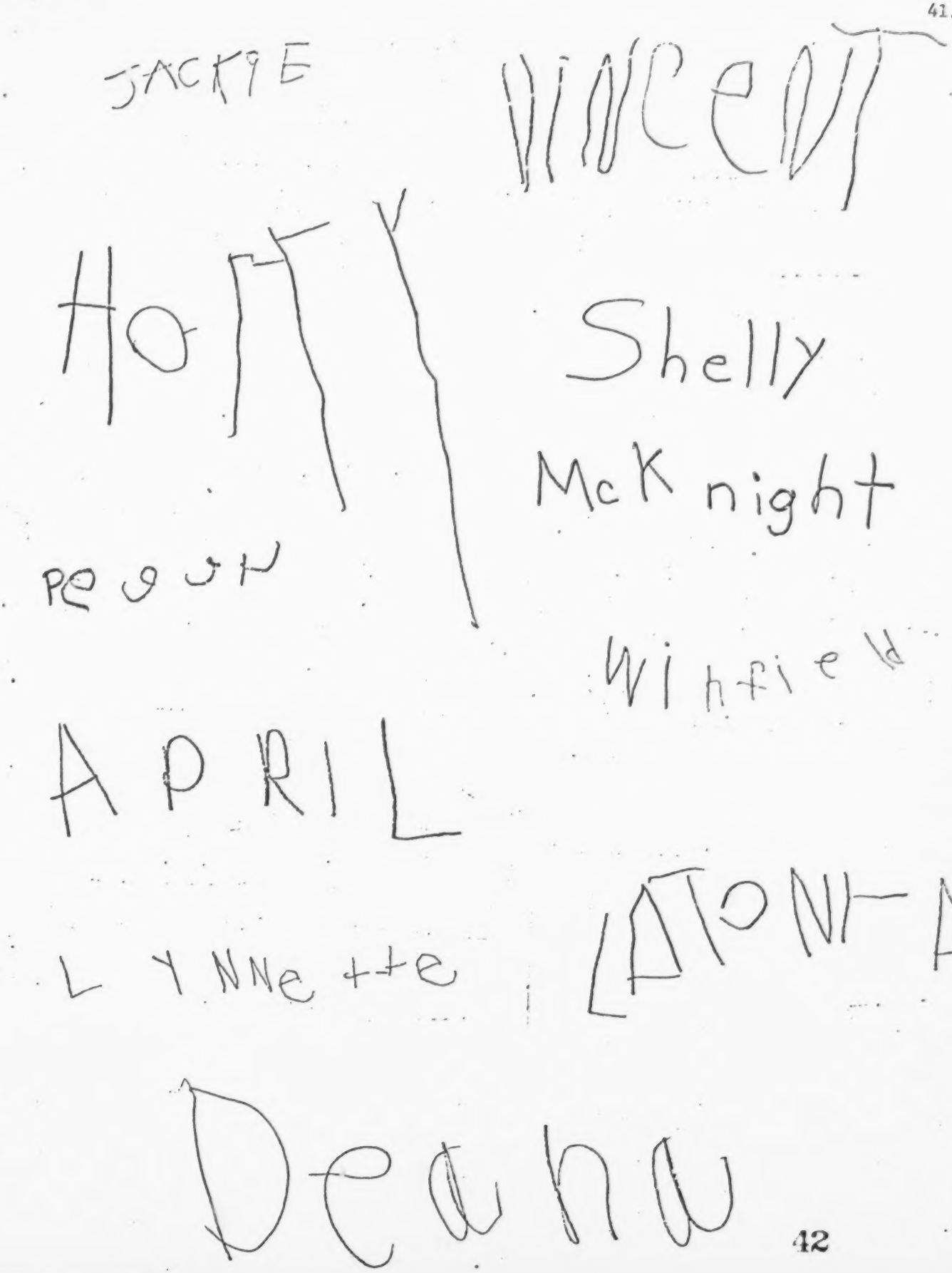
"It starts children off with the idea that school is more than finger painting, coloring, and playing games."

*"There have been more things learned than I can name."

*"Helped my son in all areas."

*"I am very proud [of] what the NAM program has taught my child."

*Responses to Question 21 which were unclassified.


JACKIE
VINCENT
HOLLY
Shelly
McKnight
Winfield
APRIL
LYNNette
LATONYA
Deana

IV. SUMMARY AND CONCLUSIONS

Unfortunately, the conclusions we can make at this time regarding the effectiveness of the NAM program are quite tentative for a number of reasons. The relatively small number in our sample, the relative lack of data on some of the more important comparison groups in the study, the important differences that may exist between "early program finishers" and "late program finishers," and several other factors render our findings inconclusive at this stage.

The overall picture which the data presented thus far seems to paint is that the children in the sample under consideration here have made progress, and indeed seem to have mastered several of the skills that we have tested. In general, it seems unlikely that gains as dramatic as many of those we have observed could have resulted without some formal instructional program. Obviously, the NAM program must be considered as a likely cause of these gains or, more appropriately, as a likely contributor to these gains.

With that final observation, we conclude this preliminary report, eagerly anticipating more data for our final report, which will include the additional information that such reports usually provide.